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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,598	11/21/2003	Joel D. Oxman	59092US002	3112

27910 7590 11/18/2005

STINSON MORRISON HECKER LLP
ATTN: PATENT GROUP
1201 WALNUT STREET, SUITE 2800
KANSAS CITY, MO 64106-2150

EXAMINER

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,598

Applicant(s)

OXMAN ET AL.

Examiner

Susan W. Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/29/05.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) 1-23, 25, 27, 30, 31, 34, 35, 37-56 and 59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24, 26, 28, 29, 32, 33, 36, 57 and 58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-59 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/04, 6/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-53, now claims 1-53 and 57-59, and the species of photoinitiator system comprising 2-ethyl-9,10-dimethoxyanthracene, 4-methylphenyliodonium tetrakis(pentafluorophenyl)borate (does applicant intend 4-(1-methylethyl)phenyl 4-methylphenyliodonium tetrakis(pentafluorophenyl)borate?), a ketone as visible light sensitizer and the species of polymerizable materials as an epoxy resin as the cationically polymerizable resin without filler, in the reply filed on 08/29/2005 is acknowledged. The traversal is on the ground(s) that Group I cannot be used in a materially different process than that set forth in Group II and that search and consideration would not involve an undue burden. This is not found persuasive for the following reasons. That a claim incorporates the limitations of another claim does not determine whether the claim is dependent of independent in the sense of whether it recites an independent invention. It is agreed, as pointed out by applicant, that the method set forth in Group II cannot be practiced with another materially different product. However, the argument that the compositions of Group I cannot be used in a materially different process from the process of Group II is not persuasive. The claims specifically recite polymerizing to provide a dental restorative or prosthesis. Thus, the process, as claimed, cannot be used to provide a molding, photoresist or film other than a dental restorative or prosthesis.

Applicant traverses the requirement to elect a species of photoinitiator system and polymerizable material on the basis that the election is more limiting than the scope of any claim in the present application. Applicant has added claim 57, which is generic to the various species set forth in the preceeding claims, including the elected claims. Applicant's argument is not persuasive because applicant has not admitted on the record or provided evidence to show that the species set forth in various claims are obvious variants. Upon allowance of a generic claim, applicant will be entitled to consideration of claims to additional species within the generic claim.

The requirement is still deemed proper and is therefore made FINAL.

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Claims 54-56 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention. Applicant is reminded that a process using a composition may be rejoined upon identification of patentable subject matter in the composition claims wherein the process claims are of the same scope.

Claims 1-23, 25, 27, 30, 31, 34, 35, 37-56 and 59 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The examiner has not found any disclosure of the iodonium salt “4-(1-methylethyl)phenyl 4-methylphenyliodonium tetrakis(pentafluorophenyl)borate” set forth in claim 32 in the disclosure. See paragraphs [0052] and [0093].

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 24, 26, 28, 29, 32, 33, 36, 57 and 58 are rejected under 35 U.S.C. 102(b) as being anticipated by Berner et al (4,560,709). Berner et al disclose photopolymerizable mixtures wherein the catalyst comprises an aromatic iodonium salt and a ketone of formula I, II or III. The compositions can also comprise a photosensitizer, such as a derivative of anthracene, that shifts the spectral sensitivity into specific ranges (column 6, lines 56-60). Table 2 discloses compositions comprising 9,10-

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diethoxyanthracene as the photosensitizer in combination with diphenyl iodonium hexafluorophosphate and 2-benzoyl-2-propanol. Berner et al teach that curing in daylight is possible in the presence of suitable photosensitizers. The claims are considered to be anticipated by compositions disclosed by Berner et al wherein the ketone employed is a visible light sensitizer and the photosensitizer is an alkoxy anthracene, as disclosed in Table 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24, 26, 28, 29, 32, 33, 36, 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berner et al (4,560,709). Berner et al disclose photopolymerizable mixtures wherein the catalyst comprises an aromatic iodonium salt and a ketone of formula I, II or III. The compositions can also comprise a photosensitizer, such as a derivative of anthracene, that shifts the spectral sensitivity into specific ranges (column 6, lines 56-60). Table 2 discloses compositions comprising 9,10-diethoxyanthracene as the photosensitizer in combination with diphenyl iodonium hexafluorophosphate and 2-benzoyl-2-propanol as the ketone.

The difference from the instantly claimed compositions is that Berner et al do not specifically require a visible light sensitizer as the ketone component or as the photosensitizer component of the initiator system taught. However, Berner et al teach that curing in daylight is possible in the presence of suitable photosensitizers and incorporates the disclosure of photosensitizers in US 3,729,313 (column 7, lines 1-11). It would have been obvious to one skilled in the art at the time of the invention to include a

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visible light photosensitizers in the compositions disclosed by Berner et al, as suggested by Berner et al for curing in daylight. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a composition curable by exposure to daylight, as taught by Berner et al.

Claims 24, 26, 28, 29, 32, 33, 36, 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (4,394,403). Smith discloses photopolymerization initiators for photopolymerizing cationically polymerizable materials using light in the ultraviolet and visible spectral regions (column 7, lines 21-25). Smith teaches that the aromatic iodonium salts are photosensitive only to ultraviolet light and that they are sensitized to the near UV and visible range by sensitizers such as aromatic amines, aminoketones and colored aromatic polycyclic hydrocarbons (column 7, lines 52-66). See Examples 17-33 and Table III). Exposure to sunlamp is used for curing in the Examples.

It would have been obvious to one skilled in the art at the time of the invention to employ a mixture of the aromatic iodonium salt photopolymerization initiators and sensitizers disclosed by Smith in order to employ ultraviolet light and visible light for photopolymerization of the cationically polymerizable compositions disclosed by Smith. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a composition rapidly curable by exposure to ultraviolet light and visible light to provide polymers having desirable properties, as taught by Smith in column 2, lines 15-31.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yang et al (6,949,297, filed 11/02/2001). Yang et al disclose curable adhesives comprising a polyacrylate and an epoxy. Cationic photoinitiators, such as iodonium salts, and photosensitizers, such as

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alkoxy anthracenes or camphorquinone, are taught (column 8, lines 16-57). Light between 200 to 800 nm is said to be effective for curing (column 10, lines 7-18).

Olofson et al (6,706,403, filed 05/12/2000). Olofson et al disclose photopolymerizable epoxy resin compositions and a photosensitive initiating system. The photosensitive system comprises iodonium or sulfonium salts and sensitizers, such as alkoxy anthracenes or camphorquinone, reactive to light in the visible region (column 12, lines 27-41).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SB
11/14/05



Susan W Berman
Primary Examiner
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